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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,572	04/20/2001	Karl Heinz Munzke	40954/DBP	6028

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EXAMINER

STOCK JR, GORDON J

ART UNIT PAPER NUMBER

2877

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/700,572

Applicant(s)

MUNZKE ET AL.

Examiner

Gordon J Stock

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7,8,9.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to because Fig. 4 needs labeling of axes. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 1, 5, 6, 7, 9, 11 and 12** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, **claim 1** recites the broad recitation "in various views," and the claim also recites "in particular in side views and a plan view" which is the narrower statement of the range/limitation; **claim 5** recites the broad recitation "in a region of the overall image" and the claim also recites "in particular a plan view" which is the narrower statement of

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the range/limitation; **claim 6** recites the broad recitation “is remote from the or all image-recording device or devices” and the claim also recites “in particular towards the support surface” which is the narrower statement of the range/limitation; **claim 7** recites the broad recitation “in various views,” and the claim also recites “in particular in side views and a plan view” which is the narrower statement of the range/limitation; **claim 9** recites the broad recitation “prisms or mirrors” and the claim also recites “in particular are displaceable and/or have curved surfaces” which is the narrower statement of the range/limitation; **claim 11** recites the broad recitation “means for changing the image scale of at least one partial image with at least one other partial image” and the claim also recites “in particular a lens arrangement” which is the narrower statement of the range/limitation; **claim 12** recites the broad recitation “a lighting device” and the claim also recites “in particular has a light diffuser device” which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claims 7-10, 12-14** are rejected under 35 U.S.C. 102(b) as being anticipated by Linker (WO 98/04882).

As for **claims 7-8**, Linker in a vision inspection/sorter module; comprising an opto-electronic image-recording device and a storage and evaluation unit for image processing and image evaluation wherein there are provided optical means for beam deflection, by means of

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which a plurality of partial images of the object are recorded by a number of image-recording devices, which number is smaller than the plurality of partial images, and are at least partially assembled optically at the same time to form an overall image which shows all views and in which the boundaries of the partial images are recognizable, characterized in that there is provided a flat support surface for the object and the beam-deflection means are arranged substantially in the plane of the support surface in such a way that there is a view parallel to the support surface; provided a single image recording device relative to which the object is positioned in such a way that it fills only a partial region of its field of view; beam deflection devices are disposed in the remaining field of view which project side views of the object on to the image recording device; permitting checking of coplanarity of a plurality of parts of the object (Figs. 4a-4c; Figs. 10 and 11; pages 11-16).

As for **claim 9** (see claim 7 or 8 above), Linker discloses that the beam deflection means are displaceable, for there are adjustment means for positioning the imaging housings to accommodate IC devices of different thickness (page 12, lines 4-6).

As for **claim 10** (see claim 7 or 8 above) , Linker discloses that the beam deflection means have a light guide (Fig. 9; page 13, lines 4-5).

As for **claims 12 and 13**, Linker discloses diffusive mirrors and prisms (page 13, lines 5-20).

As for **claim 14**, Linker discloses the image recording device and the storage and evaluation unit are integrated to form a structural unit (Fig. 2).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 1-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Beaty et al. (5,909,285)** in view of **Csipkes et al. (5,729,622)** and **Willoughby, Jr. et al. (5,619,587)**.

As for claims 1-6, **Beaty** in a three dimensional inspection system discloses the following: a method for detection and checking of geometrical or textural features of an object in various views using an opto-electronic image recording device as well as storage and evaluation unit for image processing and evaluation, wherein quality or state assessment of the object is effected by a comparison with parameters which are predetermined in respect of the individual features, wherein a plurality of partial images of the object are substantially recorded by means of a number of image-recording devices and beam-deflection means which number is smaller than the plurality of partial images, and at least partially optically assembled at the same time to form an overall image which shows all views and in which the boundaries of the partial images can be recognized, and the overall image is evaluated separately for checking individual features in the boundaries of the partial images, characterized in that the regions of the overall image, which show side views on to the object locations at which the object comes very close to a support surface are ascertained by analysis of the gray value distributions; subsequently the light quantity which passes through between the object and the support surface and which is reflected in the pixels as an intensity value is detected; the local light quantity pattern

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characterizing the width of a gap between the object and the support surface is determined using intensity values; partial images are assembled optically and recorded by precisely one image-recording device; in the overall image the regions of the partial images are so positioned and identified, using the storage and evaluation unit that they can be associated with individual views; in that at least one additional step the scene is recorded with a reference object which has predetermined parameters in respect of the features and the corresponding overall image is put in the storage and evaluation unit for comparison and calibration purposes; areas with severe local intensity differences are emphasized, detected and quantified in respect to their dimensions; integrated into the overall image is a representation of the side of the object (Fig. 1a, 1b; cols. 3 and 4; col. 5, lines 20-40; col. 6, lines 25-40; col. 7, lines 35-65; col. 8, lines 1-35).

As for calibrating with an algorithm Beaty is silent; however, Beaty mentions gradient image processing (col. 8, lines 1-35). Csipkes in an inspection system teaches using an algorithm in gradient processing during calibration (col. 21, lines 20-45); Willoughby in a system for measuring thickness teaches using algorithms in defining profiles that are used in calibration (col. 8, lines 55-67; col. 9, lines 1-30). Therefore, it would be obvious to one skilled in the art at the time the invention was made that a predetermined algorithm was used, for gradient processing was performed to provide data concerning the edges of the object.

10. **Claims 7, 8, 12, 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Beaty et al. (5,909,285)** in view of **Lebeau et al. (5,563,703)**.

As for **claims 7 and 8**, Beaty discloses the following: an apparatus for detection and checking of geometrical features of an object in various views; comprising an optoelectronic image-recording device and a storage and evaluation unit for image processing and

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image evaluation wherein there are provided optical means for beam deflection, by means of which a plurality of partial images of the object are recorded by a number of image-recording devices, which number is smaller than the plurality of partial images, and are at least partially assembled optically at the same time to form an overall image which shows all views and in which the boundaries of the partial images are recognizable, characterized in that there is provided a flat support surface for the object and the beam-deflection means are arranged substantially in the plane of the support surface in such a way that there is a view parallel to the support surface; provided a single image recording device relative to which the object is positioned in such a way that it fills only a partial region of its field of view; beam deflection devices are disposed in the remaining field of view which project side views of the object on to the image recording device (Fig. 1a, Fig. 1b, Fig. 1c; cols. 3 and 4; col. 5, lines 20-40; col. 6, lines 25-40; col. 7, lines 35-65; col. 8, lines 1-35). As for coplanarity of a plurality of parts, Beaty is silent. However, Lebeau in an inspection apparatus teaches that coplanarity is a parameter that must be met to ensure quality semiconductor devices (col. 1, lines 10-25). It would have been obvious to one skilled in the art at the time the invention was made to have the inspection device comprise checking of coplanarity to ensure the quality of the semiconductor device.

As for **claims 12 and 13**, see **claim 7** above. In addition, Beaty discloses a diffuser for producing a uniform light flux under the object which is arranged behind projecting parts of the object and permits a view on the side of the object remote from the image recording device (Fig. 9a).

Allowable Subject Matter

11. **Claim 11** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

As to **claim 11**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an apparatus for automated detection and checking of geometrical and/or textural features means for changing the imaging scale of at least one partial image with respect to at least one other partial image, in combination with the rest of the limitations of **claim 11**.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent 5,276,546 to Palm et al.

U.S. Patent 5,420,689 to Siu

U.S. Patent 5,452,080 to Tomiya

U.S. Patent 6,088,108 to Toh et al.

U.S. Patent 6,389,688 to Srivastava et al.

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and

2) Should be unsigned by the attorney or agent.

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This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (703) 308-7722

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (703) 305-4787. The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



gs

June 30, 2003



Frank Font

Supervisory Patent Examiner
Art Unit 2877